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THE RELATIONS OF HEALTH AND DISEASE.

INTRODUCTORY ADDRESS TO THE MEDICAL SCHOOL OF HARVARD UNIVERSITY, DELIVERED NOVEMBER 1, 1865, BY CALVIN ELLIS, M.D., ADJUNCT PROFESSOR OF CLINICAL MEDICINE.

GENTLEMEN,—Although standing before you in obedience to the dictates of a long-established custom, I recognize a higher duty than that of satisfying the demands of mere routine. There must be but little vitality in the profession, if it does not admit of, or even demand at least an annual survey. Such an inquiry concerns alike those who stand upon the threshold, seeking they hardly know what, those who are swept easily along by the current of routine, and others who are appalled, and, at times, almost discouraged by the problems forced upon them by daily experience.

With the many evidences of the popular perversion of the word profession, it is most essential that we should fully realize its true meaning. If elevated at all above what are regarded as the less honorable callings, it is because it implies fealty to the higher laws, the sternest loyalty to truth, abnegation of self, service and sacrifice. This is certainly not too much to demand from those who seek to interpret the laws of nature for the benefit of mankind.

Amid the scepticism and fluctuating opinions of the day, it would certainly be no easy task, even if it were a profitable one, to attempt to state precisely where we stand. Our position will be much better expressed by showing the direction in which we are moving; and it can be made clear that the advance in medicine is fully commensurate with that in other branches of science.

In past ages students of physical science have sought to develop the peculiarities of what they regarded as different forces and establish boundaries between them. These efforts have ended in the discovery that all forces are related and are convertible into each other; that light, heat, electricity, magnetism, &c., are only different modes of motion. In the world of matter, no loftier step was ever taken than this.

Although this truth, like many others, has been daily presented to the observation of men, it was not until 1798 that Count Rumford saw a most obvious example of it in the familiar phenomena of friction.

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tion. When the temperature of a cylinder was raised by a revolving borer to the boiling point, and the quantity of heat produced was altogether incompatible with its previous existence in the solid matter, he saw that its source must be sought elsewhere, and was irresistibly led to the conclusion that it was "extremely difficult, if not quite impossible, to form any distinct idea of anything capable of being excited and communicated in those experiments except it were motion."

Another more complicated but equally conclusive experiment, by Grove, points in the same direction. "A prepared daguerreotype-plate is enclosed in a box filled with water, having a glass front with a shutter over it. Between this glass and the plate is a gridiron of silver wire: the plate is connected with one extremity of a galvanometer coil, and the gridiron with one extremity of a Breguet's helix—an instrument formed by a coil of two metals, the unequal expansion of which indicates slight changes in temperature—the other extremities of the galvanometer and helix are connected by a wire, and the needles brought to zero. As soon as a beam of either daylight or the oxyhydrogen light is, by raising the shutter, permitted to impinge upon the plate, the needles are deflected. Thus, light being the initiatory force, we get chemical action on the plate, electricity circulating through the wires, magnetism in the coil, heat in the helix, and motion in the needles."

These views of correlation have been and will be met with the charge of materialism, as if it were claimed that the mystery of life had been solved. Surrounding all human knowledge and above all human speculation, there still remains the inscrutable initial force, which no experimental philosophy can reach or harm. We only claim to understand a little better the few phenomena presented in our daily lives; to have simplified and connected them more intimately and indissolubly with the great central cause, which is as far as ever above our comprehension. We only approach nearer to that

" Truth which draws
Through all things upward; that a twofold world
Must go to a perfect cosmos. Natural things
And spiritual—who separates those two
In art, in morals, or the social drift,
Tears up the bond of nature and brings death.

• • •
Without the spiritual, observe,
The natural's impossible; no form,
No motion! Without sensuous, spiritual
Is inappreciable; no beauty or power!
And in this twofold sphere the twofold man
Holds firmly by the natural, to reach
The spiritual beyond it—fires still
The type with mortal vision, to pierce through,
With eyes immortal, to the antetype
Some call the Ideal—better called the real,
And certain to be called so presently,
When things shall have their names."

It is necessary to speak thus strongly upon this point, as the unreasonable fears of some may be still more excited by the assertion that

the same law of correlation binds together man and the different forces of nature.

Vital phenomena have generally been regarded as something entirely distinct from physical. Without directly asserting it, much of the common language of the day seems to imply a change of plan in connection with humanity, while all the teachings of physiology show the opposite. As no language of mine can present the facts as well, I will quote the words of another.

* * * "As a creature of organic nutrition, borrowing matter and force from the outward world; as a being of feeling and sensibility, of intellectual power and multifarious activities, man must be regarded as amenable to the great law that forces are convertible and indestructible.

"The forces manifested in the living system are of the most varied and unlike character—mechanical, thermal, luminous, electric, chemical, nervous, sensory, emotional and intellectual. That these forces are perfectly coördinated, that the relation is of the same nature as that which is found to exist among the purely physical forces and which is expressed by the term correlation, seems also abundantly evident.

"If a current of electricity is passed through a small wire it produces heat, while if heat is applied to a certain combination of metals it reproduces a current of electricity; these forces are therefore correlated. A current of electricity passed through a small portion of a motor or sensory nerve, will excite the nerve-force in the remainder, while, on the other hand, as shown in the case of the torpedo, the nerve-force may generate electricity. Nerve-force may produce heat, light, electricity, and, as we constantly experience, mechanical power, and these, in their turn, may also excite nerve-force. This form of energy is therefore clearly entitled to a place in the order of correlated agencies. * * * *

Moreover, sensations do not terminate in themselves, or come to nothing; they produce certain correlated and equivalent effects. The feelings of light, heat, sound, odor, taste, pressure, are immediately followed by physiological effects, as secretion, muscular action, &c.

"How the metamorphosis takes place—how a force existing as motion, heat or light, can become a mode of consciousness—how it is possible for aerial vibrations to generate the sensation we call sound, or for the forces liberated by chemical changes in the brain to give rise to emotion, these are mysteries which it is impossible to fathom. But they are not profounder mysteries than the transformation of the physical forces into each other. They are not more completely beyond our comprehension than the nature of mind and matter. They have simply the same insolubility as all other ultimate questions."

This connection being established, it remains for us to show that something of the same correlation exists between healthy and mor-

bid phenomena; that the two are, at least, so intimately connected as to make an absolute separation impossible. If the proof be less complete, it must be remembered that the problem is more complex—the difficulties attending even physiological inquiry are infinitely increased. The elements are not so fixed; we have not such constant quantities to deal with.

All the varied phenomena of life are but different expressions of vitality; the most common, combined in such a way as to secure the great aim for which man was created, we call health; deviations from this, disease. The difference is precisely the same as that which exists between harmony and discord. But health itself is a relative term, signifying a proper adjustment to surrounding things. This is obvious to all in connection with climate. The health of an individual in any given locality is a part of that locality. If the body may claim the soil, atmosphere, &c., they may claim it, and a change shows how strong the grasp may be. The most robust of northern birth and breeding find debility, disease, and even death in a southern clime, unless adjusted to the new conditions, when the old strength and activity return. Health is restored, but it cannot be precisely the same thing as before. With different elements, we have the same result, and, on the other hand, with the same agent we have different results; that which for a time disturbed the whole economy, finally brings vigor and complete restoration. The common expression that an invalid is seeking health is full of the deepest truth, and if we understood the play of affinities better, we might assign to each his proper place, were it not a question of more than climate, temperature or food. Man's nicest relations are established through his nervous system, his emotions and intellect. The home, the social circle, the occupation, all furnish innumerable causes of variation, into which we can get no insight, and over which we may have no control. But to these difficulties there is added another equally great—the impossibility of subjecting human beings to that nice experimentation, by which laws in the physical world are fixed. We would not, if we could, carry experiments upon human suffering farther than each man in his blindness carries them for us. We have too much respect for life to attempt the solution of problems without regard to the consequences; we are at once checked by the possibility of doing harm. Our facts must generally be gathered in a desultory manner, seized only when they offer themselves. But by patient watching much has been gained. The observation of symptoms during life and the application of scientific methods of research after death, have so far disclosed the truth that we now stand upon a firm basis, and may justly claim our true position by the side of other sciences.

Though facts have been for a long time accumulating, it is by no means yet recognized how great a change has taken place in the fundamental principles of medicine. In obtaining these results the

same natural and inevitable mode of inquiry has been pursued as in the investigation of other branches of knowledge, and has been characterized by the same errors—defective observation and, therefore, necessarily false generalization; or false deductions from true premises. The tendency to classify and reduce to systems has been in advance of rigorous investigation, and has, at times, taken the place of it. In the study of nature the concrete must precede the abstract, and it is only when our knowledge has become very extensive and complete that we can combine facts in such a way as to facilitate a more complete comprehension of them. A still greater perfection is required for the attainment of that highest insight which teaches us the proper relation of things. To the partially cultivated mind variety is the most obvious characteristic of matter. The earliest efforts are devoted to the establishment of distinctions and erecting boundaries; but knowledge being deficient, the merest accidents are, perhaps, followed as guides, and progress is only retarded. Such has been the course in medicine; the search has always been for lines of separation, absolute boundaries between health and disease, and between the different varieties of disease. These have changed with the prevailing opinion of the time; many errors have been discovered and abandoned, but the great fundamental error of all was persisted in until more accurate means of investigation and more rigorous observation disclosed the great truth, that there exists a close relationship not only between health and disease, but also between many of the expressions and forms of disease, as well as between healthy and morbid textural changes. Although there are facts which appear to show a similar correlation and convertibility as in the instances previously cited, we shall only introduce here evidence of close relationship.

Guided by the most obvious external manifestations, we may convince ourselves that by insensible gradations health and disease merge into each other. No one who has observed the infinite number of indications of disease, can fail to realize the impossibility of distinguishing absolutely between many of them and those of health; and where most marked so as to constitute symptoms or even signs, they are exaggerations or perversions of healthy action.

The vagaries of the human mind furnish a most prolific field of inquiry. Many efforts have been made to define insanity, and distinguish it absolutely from its opposite, but without success. If sanity be anything it is that nice adjustment of the mental faculties of each individual which preserves them in their proper relation to external things. Yet, if we attempt to apply this rule, who shall escape condemnation? We must neglect the more delicate impairments of this adjustment if we would come to any practical decision, but we need not deny their existence.

Sensation must be accepted as an inexplicable phenomenon. Will

any one undertake to prove that pain is something entirely distinct from it? They are as intimately allied as motion, heat and light.

The same may be said of all the special senses, not only in their normal manifestations, but in the exaggerations and perversions which are decidedly morbid.

The history of intermittent fever exhibits in the most striking manner not only the unseen and subtle cords that bind man to the external world, but the close connection between health and disease.

There are many spots upon the surface of the globe which, during certain seasons of the year, furnish salubrious dwelling places for man. But the simple addition of the heat which attends the lengthening days converts these localities into sources of disease and death. The human system responds with strange fluctuations of heat, cold and muscular contractions, even when removed to a distance. And yet no new agent can be detected. The changes are as mysterious as those which attend the evolutions of heat, light or electricity. Health and disease alternate with a regularity as great as that which characterizes the swing of the pendulum.

What we have seen here in a connected chain is true of other affections in which no textural changes have taken place. They are all characterized either by modifications of the ordinary functions, or are dependent upon changes which are themselves exaggerations or slight modifications connected with the general laws of growth and decay.

The relation of disease and health is still more strongly shown in the various textural changes which have now been fully investigated by means of the microscope. Many processes, which formerly received distinct names or were attributed to different causes, are found not only to be similar, but to resemble so closely the natural ones as to be hardly, or not at all, distinguished from them.

The ideas prevalent a few years since, and still maintained by some, in regard to the character of new formations, are no longer tenable. An accurate knowledge of their structure has shown that almost all of them are the result of excessive nutrition, or of the substitution of tissues in themselves normal, though out of place where found. There seems, as it were, to be a persistence of that generative force which secures the differentiation of the apparently homogeneous elements of the single cell. The same wonderful transformation is seen in the growth of the vegetable seed, or that of the animal ovum. Under the action of light, heat and moisture, the first is developed into the most various and beautiful structures. With the nourishment derived from these last, the simple animal germ subdivides, and in subdividing changes, until all the complicated organs of the body are formed, though sometimes with strange variations at an earlier or later period of foetal life. But there seems also to linger in the different parts of the completed organism some remnant of the old power. This manifests itself in a deviation

from the ordinary mode of growth. It may be shown in increased action and nutrition, through which hypertrophies arise. The elements increase in size or number, until a visible enlargement of a part takes place. Nutrition and hypertrophy are merged in each other. Again, certain tissues, in themselves normal, appear in parts where they do not naturally belong; one cell may be substituted for another, cells for fibres, or fibres for cells. Many of the common textural changes which constitute disease arise in this way.

These different materials may accumulate at certain points and form outgrowths or tumors. All the primitive tissues are represented—epithelium, fibre, fat, cartilage, bone and bloodvessels. Glandular structure is imitated, and nerve-tubes may be reproduced when divided.

Even in cases where none of the permanent tissues are clearly made out, the products may be such as belong to a primitive stage of development—as in the elements found in the so-called fibro-plastic growths; or are only slight variations from the normal type, with characters so little expressed as to render the application of any special term useless. Cancer itself contains no constant nor absolutely characteristic element, though that most commonly found deviates so much from the greater part of the tissues that we readily detect it.

It does not seem out of place here to suggest, at least, that the extraordinary appearance of foetal structures, or portions of a foetus, in various parts of the body, may be only a still higher manifestation of this reserved generative power.

If we compare the numerous terms formerly and still applied to tumors, with those substituted by the more accurate knowledge of the present day, we see, instead of the strange nomenclature, founded upon certain accidents of form, resemblance or position, a thoroughly scientific, and therefore simplified language, which not only expresses the true nature of growths, but brings them all within a general law.

A change quite as great and important has taken place in the views of inflammation. The obscurity which was fast accumulating with the multiplication of treatises upon the subject, has at last been dispelled by the discovery that the phenomena are of the simplest kind, and closely allied to those of health. Such a result was impossible as long as the older views prevailed, accidents were regarded as essentials, and all the changes were studied as new and special manifestations, entirely unconnected with normal life. The bloodvessels were supposed to play so important a part, that it was thought impossible for non-vascular tissues to inflame. A great obstacle to the acquirement of correct views upon these points has been the complexity of animal structures, and this would ever have been a barrier, had it not been recognized that nature's operations were conducted on a general plan, only modified for special purposes; that

the structure and action of plants represent, to a certain extent, those of animals; that the simpler tissues obey the same laws as the more complex, although the conditions upon which these laws act are somewhat changed. Plants, though unprovided with nerves or bloodvessels, show a power of resisting, yielding to and repairing injury, precisely the same as that seen in the most delicate parts of the human organism. Experiments have shown that the most characteristic phenomena of inflammation are but repetitions of what is observed in vegetable structures. If one of the latter is wounded or irritated, its formative activity is excited, and there arise many new elements closely resembling the old. So in the most unequivocal, advanced and destructive stage of inflammation, in those parts of the human body unprovided with bloodvessels, as in cartilage, the existing nuclei subdivide and furnish elements which cannot be distinguished from the white corpuscles of the blood. In vascular parts the same elements are formed, and in forming create a demand for nutrient materials, which is answered through the increased supply of blood; serum or fibrin may also accumulate, and we have swelling; an increase of heat naturally follows, and the nervous system takes cognizance of the change in the form of pain.

This same process has only to be repeated near some surface, and an ulcer is formed. The tissues, which usually constitute the outer layer and protect the internal parts, become the seat of a similar development of nuclei, which multiply until they have taken the place of the firmer elements, and give the characteristic moist, denuded appearance.

Caries of a bone differs in no respect from the last, except that it is deep seated and involves a harder texture, which the soft new formation gradually displaces and then itself decays.

On the return of healthy action the multiplication of elements ceases; those already formed are either discharged externally or absorbed, and, if the disease have not progressed too far, the part returns to its former condition. If this be impossible, fibrous tissue is generally substituted and a cicatrix remains.

All of these changes take place constantly, without the interposition of art, and appear to be as much connected with each other as are motion, heat and light. The ultimate change is only growth.

The old views of pyæmia are no longer tenable, inasmuch as it has been shown that pus-corpuscles cannot be distinguished from the white corpuscles of the blood; that they cannot be absorbed as such through any unbroken vessel; that, when pure and fresh, they may be injected into the circulation without injury. Whether the numerous abscesses be excited by an invisible, deleterious material which has in some way entered the blood; or be formed in the parts where found, in the same manner as at an isolated point, the anatomical change is precisely the same as that which takes place under ordinary circumstances. The only question is about the cause, and

this is one which may still be raised about many other vital as well as physical phenomena.

The researches upon no single subject show a greater complexity of error than those upon scrofula. The term itself is so indefinite that we may, perhaps, pardon its very liberal application to affections which have neither a common origin nor perceptible resemblance. The diversity of opinion in regard to it has been such, that it is extremely difficult, if not impossible, to assign it a proper place in modern science. It may with truth be said that after applying to the various changes described in the nomenclature of the present day, we have nothing left, which, anatomically, needs the special designation of scrofula. Some may still require it to use as the chemist does the expression extractive matter, to cover a residue of which nothing is known. If it be a term too convenient to be abandoned, it must be reserved for a class of transformations which imply a marked tendency to decay, though the latter may be preceded by a feeble but exuberant growth.

The older writers have been equally in the dark in regard to tubercle. When they undertook to distinguish it from scrofula, it was described as a soft, round, yellow product, and everything which possessed these characters at once received the name. Finally, with the aid of the microscope, the so-called tubercle-corpusele was discovered, and announced as characteristic of this affection, but this claim, like those which had preceded it, was based upon accident only, and, being abandoned, nothing characteristic is left. When tubercle is recognized as a distinct disease it is generally owing to the existence of peculiarities which result from degeneration, of the same kind as that which affects all other tissues. In using the term we must take into consideration every circumstance in a given case, the preceding history, the amount of the product, its seat and accompaniments. Otherwise we shall not find a safe guide, even in the definition of Rokitansky, "that it is characterized by the absence of a capacity for high development and tendency to decay, with consecutive destruction of the tissues."

Degeneration, as we have seen, plays an important part in both of these processes, and the common form of it, the fatty, is itself a beautiful example of the manner in which nature uses the same element for the production of life or death.

We have fat as a natural, permanent tissue, widely diffused throughout the body; we find it as a nutritive element in the lacteals after meals; in the mammary gland, it gradually fills the cells and destroys them, but, in doing so, furnishes an important part of the nourishment of the new being. By its agency are removed certain parts, which are no longer of use, as the corpus luteum. All these changes are conservative. But the same product may so accumulate in its usual seat as to become a burden, may be heaped up in the form of a tumor, or may be substituted for tissues, upon the integrity

of which life itself depends. With the recognition of this simple law, the troublesome colostrum, inflammation corpuscles, granulation cells, &c. &c., melt away.

I will cite one other example of unnecessary amplification, arising from faulty methods of investigation, and persisted in, even after the light of true research has shown that the multiplication of classes and varieties only serves as a veil to hide the truth. The skin, being always exposed to our observation, has been the object of a more critical examination than is possible with the internal organs. An attempt has been made to catalogue all the changes which take place, until the nomenclature has outgrown the capacities and patience of most physicians, and yet the vocabulary is incomplete, and must remain so as long as it is based upon every conceivable accident of disease. The variations are infinite, and therefore we are constantly meeting with cases which deviate more or less from any recorded observation. It does not seem to be recognized that diseases here obey the same laws as in other parts of the body, and are attributable to the same few and simple changes.

Having shown that the old terms fail to convey an idea of the present state of knowledge, the question of substituting others arises. Some, which never meant anything and have been used to explain everything, may well be given up. Others may safely be left to time; they will fall as surely as unsound fruit. Our knowledge is still too limited to furnish a permanent language, for it might again be based upon accidents instead of fundamental truth. As we must have signs, symbols or formulæ for the expression of our ideas, many of the old ones will still answer the purpose, if we only apply them with the new meaning. It is useless to quarrel about words, if we only understand things. However unmeaning the symbols may be, our unknown quantities will appear with as much certainty as in algebra, if we calculate the problem correctly.

It is unnecessary to give further examples of the close relation existing between health and disease. Enough has been said to warrant the claim made at the commencement, viz., that the advancement in medicine is commensurate with that in other branches of science. We have reached this point by discarding vicious methods of investigation, by following the paths which alone can lead to success; by seeking our knowledge at nature's feet.

The necessity of understanding the action of the healthy organism has always been recognized. Anatomy, physiology, chemistry and other fundamental branches have been regarded as essential for an introduction to the study of disease. But they should serve as something more than an introduction or foundation. It seems too often as if, like other foundations, they were intended merely to be buried up and forgotten, or, what is worse, as they lie beneath ordinary scrutiny, too little care is often bestowed upon them, and, the examination for a degree passed, they are forever neglected.

Such neglect is fatal. It is not strange that every part of the superstructure should soon begin to show signs of haste and incompleteness, which every year renders more painfully obvious. It must be more fully recognized that the connection between disease and health is too intimate to permit a correct comprehension of the first without a living, growing knowledge of the last. Had we more of this we should hear fewer complaints of the inefficacy and unsatisfactory nature of our art. The censure often heaped upon medical science belongs not to it, but to its counterfeits which many apply in its stead, such as ignorance, the poor weaknesses of human nature, the shallow tricks which attract those who cannot know the truth. It is the equipage, the dress, the manner, the prejudice of the time that are applied. If these fail, do not blame a science which has been neither understood, appreciated nor used. Let the false image bear its own sins.

The science of medicine is in advance of the art. Its unquestioned principles, already ascertained, are not yet applied. I allude to this as a warning, not as a reproach. In what department of human life has there been a complete application of all known truth? The failure in this respect arises partly from ignorance, partly from a disinclination to change; to a conservative spirit, which influences more or less the majority of mankind.

That the above assertion is warranted, is shown by the frequent evidence of looseness in diagnosis, although it is demonstrated that in the vast majority of instances we can, at least, make ourselves acquainted with the nature of any given case, if we will only use the means at our disposal. But this implies as nice a calculation and balancing of many points as any legal inquiry. Although the external manifestations of disease involve the use of but few elements, these are combined in such an intricate manner, and exhibited in such various degrees, that the closest scrutiny is necessary to guard us against the misinterpretation of their meaning. Pathognomonic signs are few, but each disease has its own mode of expression, though it may not be detected at a glance, and time may be needed for its complete development. It is too often the case that, instead of a careful weighing of evidence and basing an opinion upon the result, we have a rough guess or a kind of dead reckoning. If the sailor cannot or will not use his quadrant and logarithms, is nautical science to be blamed for a long voyage, with an unfortunate termination?

Will it be claimed that the therapeutic art has kept pace with the developments of science? The very fears expressed by some at the scepticism of the day, in relation to drugs, would seem to prove the contrary. The application of remedies to human suffering implies something more than the use of the medical dictionary and the volume of three thousand prescriptions. If our relations to the external world are as manifold as we believe, there can be no lack of

opportunities for giving aid, even if drugs should be altogether dispensed with. But the last is impossible; we know that much may be done with them, and if the study of their effects be pursued in the same scientific manner as that already inaugurated, the future is full of hope. As natural agents they must hold their proper place, but cannot exclude other agents.

You need not fear through such investigations any loss of power. Has anything been lost by the discovery that many diseases are self-limited, have a natural period of development and decline, which no human agency can prolong more than it can the blooming of the flower; though something worse may be added by unwise interference. The more you study the mysteries of nature, the deeper you penetrate, the more will it be seen that your power is limited in certain directions. But do not talk of power lost, it was only wasted before. The greatest available force is derived from the observation of laws and the strictest obedience to them. Every error exposed, although it may for a time leave you helpless before the truth, gives a firmer ground upon which to stand. You must follow nature; you cannot coerce her. But the history of man's connection with natural forces shows that while any law is indestructible, its operation may be changed by the application of other laws, or you may shield yourself from its injurious action; you cannot destroy it. This seems to be sometimes forgotten in man's struggle for preëminence and originality.

But, however clearly we may comprehend the relations of physical or vital forces, we are no nearer than before to the acquisition of an all-embracing system of treatment. "Systems," says old Malpighi, "are ideal and mutable; observation and experience are solid and unchangeable." Has not time fully confirmed the saying? Has not the forming of systems now been given over to the shallow, superficial observer, who collects a few disjointed, accidental phenomena and makes of them a key to problems which the highest intelligence, after deepest research, can only gaze upon with wonder and awe? Not one of the many branches of knowledge which come within the province of the physician has yet been reduced to an immutable system, and yet it is claimed that something is discovered which controls them all. We laugh at the old alchemist for his fruitless labors in search of the philosopher's stone; how much more should we heap contempt upon his modern representatives, who, ignorant of the intricacy of the problem of life, actually assert the power of transmuting all disease into health, and claim the latter, when acquired, as the sole result of their labors.

"A fool will pass for such through one mistake,
While a philosopher will pass for such
Through said mistakes being ventured in the gross
And heaped up to a system."

Such is the favorite weapon of the charlatan. Sangrado, who has

so often been cited as a warning to the bloodthirsty practitioner, embodies a much broader idea. He is the typical system-monger. The majority of people being incapable of understanding or appreciating scientific truths, grasp greedily at some formula, which their limited knowledge and narrow experience persuade them they understand. Their views must be in some way circumscribed, for they do not realize that the horizon recedes as we ascend.

But the absence of a system does not imply a want of principles. If we lacked these we should have but little left. It is intended to insist most strongly upon their existence and their application, for they are truly practical. I do not forget that, however interesting and valuable scientific research may be, the application of its results to mankind is what particularly concerns you. Every truth, however small, belongs to pure science; but some few only, perhaps, have that apparent connection with our daily wants which makes them especially useful to us. These we must select as far as possible, but never lose sight of their bearings and relations. It is the narrow, exclusive view of single, perhaps accidental points, that makes bigots of us all. Remember that the practical lies in the root and branch as well as in the fruit. If you would gather the last, guard well the first.

While you repudiate absolutely all titles which imply a belief in any special dogma, you have good reason to be proud of your connection with that school which some call "old," and which is so, inasmuch as it represents the accumulated wisdom of ages, now seen more clearly and developed more rapidly than ever before. It is the old school of nature, old because true, and therefore ever young. It is a part of time and moves with it. If some old errors still linger, it is not in medicine alone that this is seen. Natural laws are equally overlooked in other callings. It is not many months since the assembled intelligence of the nation at Washington imitated the wisdom of the thirteenth century, and attempted to regulate the price of gold by statute; and even more recently the head of the oldest, and, as it is claimed, infallible branch of the Christian church issued an Encyclical Letter, which shows that the dark ages never existed or that we live in them now.

If you would elevate the profession still higher, be ready to receive every new truth, whatever its source may be. If there be danger from the too ready acceptance of new views, that arising from a rigid conservatism is equally great. Your whole spirit may be so affected as to become as useless as the compass warped by the iron hull that bears it.

If we have not misrepresented the present position of medical science, it is certainly worthy of being adopted as a profession, but everything depends upon the spirit with which you cultivate it. The words addressed by Ruskin to the students of art are most applicable here. "Remember, therefore, always you have two characters

in which all greatness of art consists :—First, the earnest and intense seizing of natural facts ; then the ordering those facts by strength of human intellect, so as to make them, for all who look upon them, to the utmost serviceable, memorable and beautiful. * * * *
 But once quit hold of this living stem * * * * and there is but one word for you—Death: death of every healthy faculty, and of every noble intelligence, incapacity of understanding one great work that man has ever done, or of doing anything that it shall be helpful for him to behold. You have cut yourselves off voluntarily, presumptuously, insolently, from the whole teaching of your Maker in His universe ; you have cut yourselves off from it, not because you were forced to mechanical labor for your bread, not because your fate had appointed you to wear away your life in walled chambers, or dig your life out of dusty furrows ; but, when your whole profession, your whole occupation—all the necessities and chances of your existence—led you straight to the feet of the great Teacher, and thrust you into the treasury of this work ; when you have nothing to do but to live by gazing, and to grow by wondering ; wilfully you bind up your eyes from the splendor—wilfully bind up your life-blood from its beating—wilfully turn your backs upon all the majesties of Omnipotence—wilfully snatch your hands from all the aid of love. And what can remain for you but helplessness and blindness, except the worse fate than the being blind yourselves—that of becoming leaders of the blind.

**ENUCLEATION OF RIGHT EYE ON ACCOUNT OF THREATENED
 SYMPATHETIC AFFECTION OF LEFT.—EXTENSIVE BONY
 DEPOSITS IN CHOROID.**

[Read before the Boston Society for Medical Improvement, and communicated for the Boston Medical and Surgical Journal.]

BY HASKET DERBY, M.D., BOSTON.

Mr. C., aged 39, consulted me June 6th, 1863. When six years of age, his right eye was wounded by several splinters of glass which flew from a piece he was pounding with a hammer. A severe inflammation ensued, followed by total loss of vision on that side. Since then, however, he had suffered no pain or discomfort in the eye, and now only visited me on account of a mouche volante before and slight asthenopia of the left eye, inability to support its continued use.

I found the right eye somewhat atrophied, the cornea nearly opaque, the iris, as far as could be seen, in contact with the cornea, its tissue being entirely degenerated. Beyond a full condition of the vessels of the conjunctiva bulbi, I noticed no evidences of existing irritation or inflammation. The *left* eye was slightly myopic, but throughout normal.

Finding that the patient had been over-using his eye of late, I simply advised a stimulant application and a short vacation. He took a journey, and on his return the difficulty had entirely disappeared.

Oct. 12th of the present year he again presented himself. He had experienced no trouble till within three months, since when the right bulb had been through several inflammatory attacks, which were accompanied by some pain and sensitiveness to the touch of this eye, and intolerance of light on the part of the sound one. I found, on examination of the right eye, that the conjunctiva was markedly injected, the vessels unusually full, and that there was some ciliary redness around the cornea. The other eye was somewhat injected, but beyond a certain degree of intolerance of light, gave no indication of the presence of any active sympathetic affection.

The patient had already been advised to submit to the removal of the anterior portion of the eye. As far as cosmetic considerations were to be regarded, this plan offered decided advantages over any other, for a better and more movable cushion for the artificial eye to be subsequently worn would thus be afforded. But such an operation would not guard against future sympathetic inflammation of the sound eye from irritation proceeding from the stump thus left behind. This would be particularly apt to be the case if bony concretions had formed within the ball, and the length of time that had elapsed since the reception of the injury rendered this particularly probable. On pointing this out to the patient, he at once acquiesced in the operation of enucleation, which was accordingly performed Oct. 14th. Recovery, as usual, was rapid.

For the account of the examination of the enucleated eye, and for the preparation of the specimen, I am indebted to Dr. Miller, who furnishes this account.

"The eye was atrophied, being reduced about one quarter. The sclerotic was normal in appearance, but somewhat thickened.

"The cornea was grayish in color, nearly opaque, diminished in size and flattened.

"In place of the crystalline was an irregular, grayish-white mass of small size, easily breaking down between the fingers, and gritty to the touch.

"The iris was disorganized so as to be hardly recognized.

"The place of the choroid seemed to be wholly occupied by a bony concretion of extraordinary size. Its shape and general configuration seemed to indicate that the entire choroid, up to the ciliary border of the iris, had disappeared before this bony growth, which, deposited on its elastic membrane, had accurately copied its form. The markings of the *venæ vorticosæ* were distinct on its outer surface.

"The place of the vitreous was occupied by a brownish fluid."

ACCIDENTAL PHYMOSIS, WITH HYDROCELE.

UNDER THE CARE OF I. G. BRAMAN, M.D., OF BRIGHTON, MASS.

[Communicated for the Boston Medical and Surgical Journal.]

AUGUST 29th. A. C., æt. 18, of strumous diathesis, presented himself, laboring under a phymosis of some two weeks' standing. The prepuce was enormously swollen and invaginated. An oiled catheter was with great difficulty introduced, and showed considerable adhesion. There was also hydrocele of the right tunica vaginalis, as shown by swelling, fluctuation, transmission of light and absence of pain. The patient ascribed it to a strain two years previously. There was no probability of any complication with gonorrhœa.

A lotion was ordered for the prepuce, of sugar of lead and tincture of opium, and the patient was directed to drink freely of flax-seed tea, and live upon the simplest food.

Aug. 30th.—Applied six leeches, and freely scarified the parts.

31st.—Less inflammation; swelling slightly reduced. Found it still impossible to retract the prepuce. The idea of introducing *sponge tents* presented itself, and this was, with considerable difficulty and much discomfort to the patient, effected. Leeches were again applied. A catheter (female) was supplied to aid in urinating. This he was directed to oil and pass around the glans penis as far as possible twice a day.

September.—Consented to an operation, but when all arrangements were completed his courage failed him, and a further delay was demanded. The following was ordered:—*R.* Potass. iodid., ʒ i.; ext. taraxaci fl., ext. rumicis fl., aa f ʒ ij.; ext. stilingiæ fl., f ʒ ss.; syr. aurant. cort., f ʒ iv.; aquæ, f ʒ viii. *M.* Cap. f ʒ ss. ante cibum. Dilute tincture of iodine to be applied to the testicle.

10th.—Great improvement. Could retract the prepuce almost to the corona. Continue lead and opium, and gradually introduce larger tents.

22d.—Inflammation and swelling of prepuce entirely subsided; could pass and re-pass the corona with perfect facility. Patient considers himself well in this respect. Gain but little on the hydrocele. The seton will probably be required, but the patient wishes to try palliative measures somewhat longer. General health excellent.

In 1863, the latest year for which returns have been issued, the birth-rate was 3-539 per cent. in England, 2-686 in France, 3-988 in Austria, 3-912 in Italy. The marriage-rate (persons married) was 1-688 per cent. in England, 1-600 in France, 1-734 in Austria, 1-626 in Italy. The death-rate was 2-305 per cent. in England, 2-244 in France, 3-110 in Austria, 3-115 in Italy. Commonly the mortality is higher in France than in England.—*Lancet*.

 THE BOSTON MEDICAL AND SURGICAL JOURNAL.

 BOSTON: THURSDAY, NOVEMBER 9, 1865.

INTRODUCTORY AT THE MASSACHUSETTS MEDICAL COLLEGE.—The annual course of lectures in the Medical Department of Harvard University was opened on Wednesday, Nov. 1st, with an address by Dr. Ellis, Adjunct Professor of Clinical Medicine. The audience, of which a large number were physicians, more than filled the lecture hall, among whom, occupying a seat by the side of the President, was the most venerable and revered of the profession, the oldest living professor of the University, Dr. James Jackson. The address was listened to with marked attention throughout, and received at its close warm manifestations of approval. It will be found entire in the present number of the JOURNAL, and our readers will be able to form their own opinion of its merits. The subject is one of great interest to the profession, and is, we think, both fairly and ably treated by the lecturer.

Accepting at the start the proposition that man is as much subject to the physical laws of the Universe as any other combination of created matter, whether animate or inanimate, and that they, modified only by the influence of individual vitality, are sufficient to account for the most mysterious phenomena of life, it will be seen how readily slight changes in their mutual relations may give rise to those new manifestations of vital action which we call disease. The object of the writer was to show how close is the relationship between these two states, health and disease, even in their effects or visible phenomena, and how needless it is to recognize the necessity of any special or new law to explain the existence of the latter. The laws of nature are fixed and absolute, and cannot be arrested even for a moment; the so-called laws of disease are not divine laws, they are merely phenomena which are in many cases produced by human agency, and which may as certainly in others be arrested at will. Some of them may even be annihilated. They, like sin, which is an interruption or disease of man's moral nature, are permitted as possibilities in human existence. Sulphuric acid applied to a board produces chemical changes which we call charring, applied to the surface of a man the same destructive results follow, but others also; we bring into existence, in some cases, a disease which we call keloid. The difference is due, in the latter experiment, to vitality. We have only modified in some manner the natural condition of healthy life. Similar phenomena follow the reception of poisons, animal or vegetable, animate or inanimate, material or invisible, whether by inhalation, inoculation or ingestion within our economy, and these results are tangible and are called disease. The fact of self-limitation in disease is no indication of any peculiarity in its origin. The destructive and reparative processes set at work by man's voluntary agency, either within the cavities of the body or upon its surface, may be as much self-limited and as invariable in their course as pneumonia. The peculiarity does not belong to the disease, it is a part of the vital agent it affects.

Science is slowly transferring to the category of diseases produced

by man's direct or indirect, but free-will agency, affections which we have been in the habit of considering especially manifestations of divine agency, because so inscrutable. Now that we can explain the trichina pestilence and recognize the existence of bacteria in malignant pustule, and vegetable organisms in some forms of the exanthemata, who can object to our unshaken faith that the future of medicine will be rendered glorious, and that light will be thrown into more dark mysteries, which we now accept as ordained evils, by many such discoveries? Need we express also our conviction, equally firm, that with this light will come both the power of turning such interpretations to man's preservation, and an enlarged knowledge of means to cure.

We have been led farther in this direction than the lecturer chose to go, but no farther, we are sure, than the thoughts of most of our readers have travelled of late. Let us receive kindly, however, and consider fairly, whatever any of our professional brethren may offer us upon this and all subjects, however widely we may differ from them. Science was never harmed by agitation, but grows upon it.

The lecture season opens with every prospect of a very full class, and although the illness of Dr. Séquard is a serious temporary loss to the Medical School and to science amongst us, the students will find in the new Assistant Professor of Theory and Practice a valuable acquisition to the advantages hitherto offered them.

Now that the cholera has been brought on shipboard to New York, the *Daily Advertiser*, which, in spite of the opinions expressed by physicians, has stated that Boston was the best-drained city of the country, no longer upholds the culpable delay of the city government, and very properly asks what it proposes to do with the sunken Church-Street district. Such an attempt at self-whitewashing as the resolutions adopted at City Hall last week is almost unparalleled even in the records of municipal government. Now that our most influential public journal has recognized the existence of this most dangerous evil, we trust it will not let the matter drop until public opinion forces the city to correct it.

DR. SAMUEL A. GREEN, recently returned from an absence of more than four years in the army, has been appointed Superintendent of the Boston Dispensary.

MASSACHUSETTS COLLEGE OF PHARMACY.—At a special meeting of the Board of Trustees, held Oct. 1st, a committee was chosen to confer with the State Constable in regard to his late order closing the apothecaries' stores on Sunday. The committee attended to their duty, and at the regular meeting of the Board, Nov. 1st, made a report of their doings, which was accepted, and ordered to be placed on file; after which the following resolutions were offered and adopted:—

Resolved, That we believe the observance of the Sabbath as a day of rest from labor to be a Divine institution, appointed by God for the good of man; that it is alike binding upon us by the laws of God, the laws of man and the good of society; that for these reasons it is both our duty and inclination to observe it strictly, so far as is practicable to the necessities of society as at present organized.

Resolved, That by reason of the necessity for dispensing of medicines, and the furnishing of many other articles, to those whose necessities absolutely require them of us on the Sabbath, we have been obliged to conform to the custom of keeping our stores open at all times, as well Sundays as in the night, to be ready to dispense these articles of necessity.

Resolved, That by reason of our stores being so opened for the convenience of those whose wants are imperative, a custom has grown up in the community of calling upon the apothecaries for many articles not of prime necessity, which could be as well obtained the day before or the day after the Sabbath; that although we do not labor as upon other days, yet the mere selling of those articles has caused a portion of the public to regard us in the light of Sabbath-breakers, classed with barbers, restaurant-keepers and bar-tenders; that the most conscientious observers of law, order and propriety do not hesitate to call upon us, in violation of the Sabbath and the laws of the Commonwealth, to furnish them with medicinal liquors, stationery, mineral waters, palliative confections, dietetics, cosmetics, and many other articles, all of which, in many cases, are of prime necessity *at the time*, and which would be a violation of the laws of charity and mercy to deny upon the Sabbath.

Resolved, That in view of the difficulty of defining what are and what are not articles of charity and necessity, without inquiring too particularly into the motives of others; the mortification we experience in denying our customers and friends what seems to them a reasonable request; the expense of keeping the store provided with the same talent, heat, light, and other conveniences as upon other days; the dubious position we hold in the eyes of our best and most conscientious citizens, *until they wish to be accommodated*; the deprivations of the benefits and blessings of the Sabbath to ourselves and assistants; all render it more to our profit and advantage to close our places of business on the Sabbath.

Resolved, That in view of all these facts, we are unable to draw any line for the guidance of apothecaries, and powerless to recommend any articles or class of articles that may or may not be legally sold on the Sabbath. Therefore, we can only recommend to each apothecary to judge for himself of each particular case, and dispense all articles of necessity agreeably to his best judgment, according to the language and intent of the law.

A. P. MELZAR, *Secretary*.

Can anybody tell us whether the College, by these resolutions, recommends the shops to be closed, or to conduct their business as heretofore?

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.—The annual meeting of this Society was held on Thursday, Oct. 26th, at No. 12 Temple Place, the President, Dr. A. A. Gould, in the chair. The report of the Treasurer shows the receipts for the past year to be \$988.85; investments, \$853.40; amount deposited, \$1,445.30; the income of the Society from assessments and investments is now about \$450. The following is a list of officers chosen for the ensuing year:—*President*, Dr. A. A. Gould. *Vice President*, Dr. H. W. Williams. *Secretary*, Dr. A. D. Sinclair. *Treasurer*, Dr. Francis Minot. *Trustees*, Drs.

Luther Parks, Jr., of Boston, W. W. Wellington, of Cambridge, S. Salisbury, of Brookline, W. B. Morris, of Charlestown, C. E. Ware, C. G. Putnam, Calvin Ellis, of Boston, John W. Graves, of Chelsea, and Anson Hooker, of East Cambridge.

RAILROAD ACCIDENTS IN MASSACHUSETTS.—In these days of frightful railroad accidents it is refreshing to read the following:—From the annual returns of the Directors of all the railroads in the State of Massachusetts, made to the Legislature, for the year ending Nov. 30, 1864, it appears that the whole number of passengers transported in the cars from Nov. 30, 1863, to Nov. 30, 1864, was eighteen million two hundred and six thousand and twenty-three (18,206,023), and of this vast number not a passenger in the cars was killed. Three persons in attempting to get on, and nine in passing from one car to another, or in jumping or falling off the platform while the trains were in motion, were killed or fatally injured. Thirty-one persons were killed during the year while lying or walking on the tracks.

CONNECTICUT VALLEY DENTAL ASSOCIATION.—The annual meeting of the Connecticut Valley Dental Association recently took place in Springfield, sessions being held morning and afternoon. There was an attendance of more than forty members, representing Vermont, Connecticut and Massachusetts. The following officers for the ensuing year were elected:—*President*, Dr. J. Beals, of Greenfield. *Vice Presidents*, Dr. J. McManus, of Hartford, and Dr. O. F. Harris, of Worcester. *Secretary*, Dr. L. D. Shepard, of Salem. *Treasurer*, Dr. C. S. Hurlbut, of Springfield. *Executive Committee*, Drs. E. E. Crofoot, of Hartford, F. C. Buckland, of Manchester, and Ralph Morgan, of Chicopee. Essays were read by the retiring President, Dr. O. B. Post, of Brattleboro', Vt., and Drs. McManus, of Hartford, and Shepard, of Salem.

VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, NOVEMBER 4th, 1865.

DEATHS.

	Males.	Females.	Total.
Deaths during the week	45	35	80
Ave. mortality of corresponding weeks for ten years, 1853—1863	36.5	35.5	72.0
Average corrected to increased population	00	00	78.93
Death of persons above 90		0	0

PAMPHLETS RECEIVED.—Report on the Use of Pressure in the treatment of Gonorrhœal and Purulent Ophthalmia. By Surgeon Jos. S. Hildreth, U.S.V., in charge of Desmarres (U. S. Army) Eye and Ear Hospital, Chicago, Ill.

MARRIED.—In Wenham, Oct. 25th, N. Alden Robbins, M.D., of Brooklyn, N. Y., to Miss Mary B. Kemble, of W.

DEATHS IN BOSTON for the week ending Saturday noon, November 4th, 80. Males, 45—Females 35. Accident, 3—anaemia, 1—apoplexy, 3—inflammation of the bowels, 1—congestion of the brain, 1—disease of the brain, 1—burns, 1—cancer, 1—cholera infantum, 3—consumption, 14—convulsions, 1—croup, 4—cyanosis, 2—diarrhœa, 1—diphtheria, 1—dropsy, 1—dropsy of the brain, 1—dysentery, 3—intermittent fever, 1—scarlet fever, 2—typhoid fever, 6—hæmorrhage, 1—disease of the heart, 2—hydrocele, 1—infantile disease, 5—inflammation of the lungs, 3—marasmus, 2—old age, 3—phlegmonous inflammation of leg, 1—pleurisy, 1—premature birth, 2—starvation, 1—unknown, 6.

Under 5 years of age, 34—between 5 and 20 years, 2—between 20 and 40 years, 16—between 40 and 60 years, 16—above 60 years, 12. Born in the United States, 50—Ireland, 13—other places, 12.